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Competent crisis plan for crisis management of municipalities and complex facilities

D. Prochazkova & J. Prochazka
Czech Technical University in Prague, Prague, Czech Republic

A. Santos
Centre for Geographical Studies, Institute of Geography and Spatial Planning, Universidade de Lisboa, Portugal

L. Carvalho
Civil Protection Municipal Service, Municipality of Amadora, Portugal

ABSTRACT: The article discusses the status of crisis management in a comprehensive management system of organizational unit (territory, community, company). For crisis management it summarizes the objectives, principles, tasks of research, the specifics of the decision, specific tools, speciality of crisis planning, preparedness principles to solve critical situations and system of response management to critical situations. Based on research it shows the content of competent crisis plan of the selected municipality with extended competences, which provides qualified response and protection of the population, and is an object of engineers' lecture at technical universities. The real results are from the Czech Republic and from the Portugal.

1 INTRODUCTION

Humans everywhere want to sufficient safe living space with development potential, i.e. human's aim is a safe community, a safe area, safe place, etc. (EU 1999, Prochazkova 2011a). Safety is understood as a set of measures and activities, which ensures security and sustainable development of human system (Prochazkova 2011a). Since the human system is an open dynamic system, ensuring the safe and sustainable development of the territory is also a dynamic process. This means that the measures and activities in different combinations are applied in time and area in order to meet the desired objectives. The process of application of measures and activities is the steering mechanism, which we call safety management system. Its concept is based on adopted security policy. Its instruments are: concepts that set out the objectives of safe policy; strategies that determine the fundamental ways in which objectives will be achieved; plans that detail the activities and include a timetable; instruments and institutions, i.e. resources, forces and means to achieve the objectives of security policy. From the perspective of strategic management it is also necessary:

– continuously monitor the situation in the human system from the point of view of occurrence of disasters, emergency and crisis situations,
– to create tools for management of emergency situations (the education of citizens, trained and ready rescue teams, disaster scenarios, disaster response scenarios, management scenarios) and critical situations (in addition to tools for emergency situations—specific legislation on release of state reserves, increased support for executive branch and restriction of rights and freedoms of citizens, special reserves of all kinds, crisis scenarios, emergency response scenarios, scenarios and procedures for managing the emergency situations at reasonable costs and losses, stabilization of the situation and launch of further development),
– to create tools for averting the crisis, for prevention of emergency situations and critical situations in particular,
– to develop tools to ensure recovery and start-up of further development,
– to have qualified crisis management in a broader concept than just a response to critical situations (Prochazkova 2011a, 2013).

System which includes measures, activities and mechanisms (ways) for their applications is referred to as a Safety Management System (SMS—Safety Management System). In this concept, based on current knowledge, the management tool is a systemic, pro-active and strategic tool to achieve the objectives in the monitored

area (Prochazkova 2011a). It must be systemic because it is applied within the system. It must be pro-active, because it is based on negotiations with the risks in favour of the objectives with the fact that according to current knowledge and experience, prevention of harmful impacts is far more effective than protective measures after occurrence of harmful impacts (Prochazkova 2011a, b, 2013). Crisis management is an important part of safety management because it focuses on the critical situation which poses serious disruption of living conditions up to collapse or even extinction of the human system in the affected area when mismanaged.

On the basis of the above, the safety management is a mechanism for application of measures and activities in order to promote security and sustainable development of the human system in time and area. Naturally, there could be more mechanisms, and their demands for resources, forces and means and efficiency may not be the same. The aim is to select the optimal mechanism to reach the targets with the appropriate resources, forces and means in technical, financial, personnel, organizational and knowledge areas. In today's world, according to the laws, the public administration is responsible for the management and development of the area and possesses legal tools for involving the private sector and other interested parties (Prochazkova 2011a, 2013).

2 CRISIS MANAGEMENT

Crisis management as such is carried out not only within the state, but within each sophisticated organizational unit, county, municipality, organization, community or human being itself. Succinctly put, it is a form of management that is used when bare existence is threatened. Therefore, it has a clearly defined objective—survival of people and creation of conditions that allow recovery and start of redevelopment. This means that crisis management is focused on ensuring the basic functions of state, and that determines its priorities and instruments used.

2.1 *The status of crisis management in system of organizational units' management*

In the above context, it should be noted that the each organizational unit, in addition to goals that have been set up to reach its own objectives, must respect moral and ethical rules of society in place where it operates. This means that the real interests of the organizational units are preceded by the protected interests of the state representing the public interest. Proper management of assets in favour of public interest and interests of its own organizational unit is based on current knowledge and takes forms of organization's project and process management, which is adjusted trough linked set of measures and activities, in which the main role is taken by negotiating with risks (Prochazkova 2011a, 2013). Proper management of affairs has three levels, Figure 1, namely:

- current management, strategic targeted safety management, which addresses security and sustainable development of an organizational unit understood as a system, i.e. for ensuring security and sustainable development of protected interests pursued by organizational unit. The main focus is on management of human activities and measures carried out by people, applied so that changes in given organizational unit caused by occurrence of adverse events (further referred to as *disaster*) with a source inside and outside the organizational unit do not lead to unacceptable distortion and dissolution of the organizational unit, i.e. that human activities and measures prevent possible occurrence of disasters or at least mitigate their harmful effects on organizational unit itself,
- emergency management, which is used in cases where serious problems occur and necessity exists to perform such activities and measures that would make loss, damage and harm to protected interests of the organizational units acceptable, when standard resources and forces of organizational unit are used,
- crisis management, which is used in cases in which the organizational unit encountered a critical problem and it is necessary to perform activities and measures to limit loss, damage and harm to protected interests of the organizational units within and outside it to acceptable level,

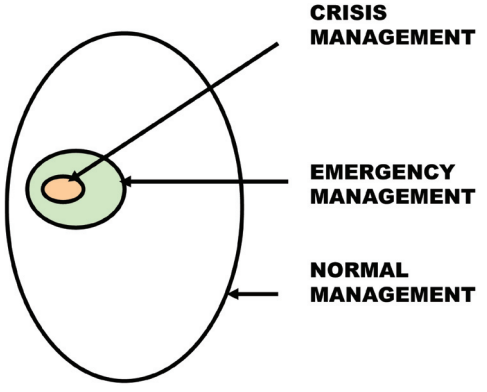

Figure 1. Position of crisis management in system management levels, (e.g. CEP 2006, Prochazkova 2011a).

when standard and beyond standard sources, forces and means of organizational unit are used in cooperation with public administration and other organizational units that are in place or are professionally related (Prochazkova 2011a, 2013). The main attention is paid to lives and health of humans and the environment and to ensure survival of organizational unit.

Safety management is also obliged to ensure the protection of people from organizational accidents (Prochazkova 2011a, 2013), the cause of which lies in the decision-making, or errors in the use of the wrong documents. Therefore, the safety management need to be based on high-quality materials, i.e. it is forced to evaluate whether they are made in the risk that sooner or later may cause a problem in a specific situation, i.e. cause an organizational disaster.

2.2 *The objectives of crisis management*

The basic objective of crisis management (Gustin 2002, Prochazkova 2013) is to ensure that: each emergency situation is managed optimally and that there is a rapid recovery (sometimes described as rapid stabilization and gradual recovery of an organizational unit); none of emergency situations develops into a critical situation; and none of critical situations is not protracted and that the recovery starts as soon as possible.

The analysis of works (EU 1999, Gustin 2002, NATO 2001, PEMA 2002, Prochazkova & Říha 2004, Boin et al. 2013) shows that the objectives of crisis management at the state level are:

- guarantee of important public services (i.e. coordination and management of state administration, and securing the critical infrastructure) and continuity of infrastructure functions in critical situations,
- protection of the human population, socio-economic life, national heritage and cultural sites,
- co-ordination of society governance so that loss of lives and on properties caused by critical situation were acceptable, through programs for mitigation, preparedness, training, intervention and response in case of occurrence of each relevant disaster,
- ensuring the resources for the survival of people and supplies necessary for the security forces,
- fulfilment of international obligations,
- ensuring the implementation of training in the fields of prevention of critical situations, preparedness and response to critical situations,
- ensuring an effective response to critical situations and minimization of their impact on population, infrastructure and environment,
- public support in response to critical situations,
- guarantee recovery after any critical situation,
- management of critical situations in order to avoid conflicts,
- ensuring the preparedness for different degrees of critical situations caused by external causes.

Tasks for each organizational unit are formed by elaboration of the objectives above, and their adjustment to conditions of an organizational unit, because in safety management, which includes crisis management, all concerned do have their tasks (EU 1999, Gustin 2002, NATO 2001, PEMA 2002, Prochazkova & Říha 2004).

2.3 *Basic principles of crisis management*

Crisis management is used in connection with critical situations which arise both in manufacturing and non-production sphere, and which cause conflict situations, induce stress and worry. Critical situations arise either suddenly or gradually. Critical situation, which occurs slowly, can be averted. Therefore, the advanced society introduces monitoring of selected symptoms for their identification, and by determining limit values of specific indicators that signal approaching the critical situation.

Basic principles of crisis management according to the EU (EU 1999) are:

- to support and encourage efforts at national, regional and local level in order to prevent disasters (i.e. critical situations with a large number of victims and people with disabilities), the readiness of those responsible for civil protection and rapid response in case of disaster,
- to contribute to public awareness in order to increase the level of self-protection of European citizens,
- to establish a system for effective and rapid cooperation between national administrations for civil protection in case of mutual assistance is needed,
- to increase co-operation at the international level in the field of civil protection,
- to involve all organizational units and residents into crisis management tasks.

According to literature, activities listed in (Prochazkova 2011a, 2013) belong into the crisis management, especially:

- monitoring of situation in given system (i.e. a situation in an organizational unit in terms of comprehensive security),
- support for detection of critical situations (evaluation methodology for data from monitoring),
- preparedness to cope with critical situations, i.e. alternative scenarios based on national practices and development of implementation plans

(qualified plans are tackling feuds, confrontations and conflicts),
– mastering the critical situation and start of recovery, i.e. the implementation of stabilization methods that are based on national habits (in each stage or nodal point, it is necessary to carry out risk assessments and evaluate their potential impacts, to ensure prevention of losses during response and recovery (Gustin 2002),
– execution of reconstruction and triggering of other effective preventive measures to increase resiliency of organizational unit.

Very important it is the co-ordination of all organizational units, which is the main task of public administration (Gustin 2002). Based on (Gustin 2002, PEMA 2002, Prochazkova 2011a, 2013) and authors' practical experience in crisis management, the following principles apply:

– management and other employees of public administration and any other organizational unit should be aware that critical situations can affect the part that falls under their responsibility, and therefore, they need to be trained how to behave and what to do,
– for expectable critical situations (caused by natural disasters, technology failures, failure of infrastructure, war), plan to deal with critical situations arising in each organizational unit should be processed and implemented,
– the emergency of critical situations cannot be excluded, and therefore, any management has to count with them. For this reason, the response measures are planned in such a way that certain control procedures are prepared in advance, as it is common in any difficult management task. These measures are then implemented when critical situations arise. Crisis management is an integral part of responsibility of management personnel. Each ministry, branch or other part of the organizational structure has its own role in crisis management,
– managers of organizational units need to realize that in case of critical situations in the area, it is not about question whether any organizational unit will be pulled into critical situations, but how soon and how strongly,
– organizational unit managers are forced to know that every critical situation escalates when confusion or loss of control in organizational units occurs even for only short period of time,
– in dealing with critical situations, the response focuses only on the priorities and it is forced to reckon with the fact that: it does not have enough information that is most needed; there are events beyond the responsibility of organizational units; and there is a loss of control, endangering of vital interests, intensive monitoring from the outside, panic, disruption of regular decision-making processes, managers shift of interest to short-term planning, decision making and activities,
– the effectiveness of crisis management depends on a large scale on effective communication, both within organizational units and with external stakeholders. The initial approach often determines whether a critical situation takes weeks or years,
– during the critical situations it is necessary to perform tasks for maintaining peace, such as facts gathering, avoiding the conflicts, ensuring the evaluations from the right experts, considering the legal consequences, protection of professional image, protection of vital interests, etc.,
– general recommendations for communicating with the public need to be focused on obtaining the public support and avoiding the confusion, ensuring the necessary activities, providing the right instruction at the right time for disabled people on what to do,
– a critical situation can be effectively managed only if the organizational unit is prepared for the worst,
– crisis management is one element of the overall procedure, which involves managing the pre-crisis (pre-crisis management), i.e. management during the normal periods, management during the crisis and management after crisis (return-to-normal management).

Crisis management differs from the policy enforcement by necessity of reckoning with the fact that during the crisis there is no time and that unpopular measures need to be also implemented to deal with the crisis. Decisions are made on the basis of incomplete information and under pressure of circumstances, which multiplies the uncertainty that exists in determining the crisis scenario. This means that the selection of the optimal response scenario is not simple. In addition, another enemy is the emergence of panic and chaos. Therefore, it is necessary to have in reserve the scenario based on a long term assessment of the situation that is applied in the first phase and is adjusted for specific situation (Gustin 2002, PEMA 2002, Prochazkova 2013).

For crisis management it is essential for everyone in a decision making position to realize that: critical situation can occur; it is necessary to learn to recognize signs of impending critical situations; and it is necessary to prepare to cope with critical situations. The basic rule in decision making is that response to a critical situation is driven by the basic (general) response scenario to avoid time delay. At the same time monitoring group starts it work in order get accurate data, provide

interpretation and prediction of developments as soon as possible. Based on these data, the action begins by a specific response scenarios (consistent with local conditions and the current situation), which is prepared in advance (in the phase of prevention and preparedness). Warning is performed by sirens or other appropriate means.

3 SPECIFICS OF CRISIS PLANNING

Because functional objects, infrastructure and equipment and necessary supplies of certain commodities are necessary for survival of people and timely and effective response to emergencies of all kinds, both issues of resistance in sense of resilience (i.e. toughness to endure critical impact for some time) and issues of continuity of important activities, need to be addressed. Continuity plans are in many countries perceived more as a support for the social process in an area than the economic process. Their contribution to the survival of people and avoidance of panic and chaos is appreciated. They do not provide momentary profits for owners of the premises, equipment and infrastructure, but help their reputation, which is an asset for future.

Experts also suggest that solving the operational continuity by ensuring the operation at an alternative location is not always the solution in terms of territory, as products are needed in the affected areas and it is not always easy to ensure their transport to the affected area (Prochazkova 2011a, 2013, USA, 1995, 1999, 2000).

Crisis planning builds on emergency planning and it is used for disasters, which may cause critical situations in scale or in intensity of exposure to humans. Its aim is neither sustainable development nor the long-term safe area. The form and extent of crisis plans is the same as for emergency plans, i.e. unification does not exist. From logical system point of view, crisis plans are essential documents for strategic management. They are third-level management tool (Prochazkova 2011a). Crisis plans follow the emergency plans and take into account critical disaster only. They differ from emergency plans by handling the situation with use of standard and superior (beyond standard) resources, powers and means.

In order to manage any critical situation and people's survival, it is necessary to ensure performance and functionality of selected objects and systems (e.g. critical infrastructure systems and subsystems), and therefore, many countries prepare continuity plans that lead to increased safety of objects and systems and ensure that the object or system "survive" critical situation and fulfil its function at some level, i.e. they will operate under normal, abnormal and critical conditions. Recently, plans are being processed for each critical infrastructure subsystems (e.g. electricity supply system, cyber system) or for the entire system. These plans are based on the concept of complex safety and pay attention to bonds and couplings that could strengthen in critical situation and influence impact on response procedures (Prochazkova 2013).

4 COMPETENT CRISIS PLAN

On the basis of the knowledge and experience of the world, compiled in the works (Prochazkova 2011a, 2013) a crisis plan for the territory is the basic document for ensuring the stability and development of the territory. It summarized the principles and measures, which shall be the protection of the protected interests of the state. The plan is based on verified data about the territory, which are handled by the relevant methods. On the basis of the analysis of specialized publications and specific plans in the world (Prochazkova 2011a, 2013, USA 1995, 1999, 2000) it was drawn up the table of contents of the crisis plan: a list of the legislation; characteristics of the territory; list of specific disasters; scenarios for specific disasters; response to specific disaster scenarios; file of emergency (emergency response, flood and similar) plans for the territory; a list of critical disasters; response scenarios to the critical disasters; and crisis management scenarios. Chapters may be filled with just the necessary accompanying text and links to relevant documents of the lower hierarchy such as scenarios of disasters, the response scenarios to the disaster, etc. According to the experience of the world there are crisis plans in written and electronic form, they are regularly updated and are based on the relevant information. Into their creation it is involved research sphere and for their update they are built a targeted database. If into the plans' creation there are not involved the experts, so these cannot in a critical situation to provide adequate professional advice, because they don't know the context of the plan and its hinterland.

4.1 *Example of Czech Republic*

On the basis of the above-cited publications and the analysis of real plans in the developed countries of the world, e.g. (USA 1995, 1999, 2000), the Czech authors by the method of analogy have compiled the table of contents of the crisis plan that is appropriate for the entities in the Czech Republic. The effectiveness of processing procedure was verified on the more than 50 state and non-state entities. The table of contents consists of the following items: short description of the

entity (topography, protected assets, the specific vulnerability of the protected assets); the list of disasters that may affect the entity (choose from the list of disasters that is given in (Prochazkova 2011a)) and create a list of the critical disasters; the assembly of representative scenarios of the critical disasters impact (empirical isoseismals, models of flood plain territory; isolines models; models of dissemination of missiles (debris); fire spreading lines; map of seismic zones; map of precipitations; simulations carried out by What, If and the other methods (Prochazkova 2011c); response scenarios to the critical disasters (response procedures for local and immediate conditions that use both, the standard and the beyond standard resources, forces and means—contingency plans, reserves, backup-finance); recovery plans after disasters of a large scale; and plans for specific activities, which are required in the response.

Experience from practice, and own referred to in the literature, e.g. (Gustin 2002), indicates that for the real response it is the need to have a document that is brief and contains the basic facts. According to the materials referred to in the works (USA 1995, 1999, 2000), which methodically correspond to the cards, which were used by the civil defence in the former Czechoslovakia (Prochazkova 2011a), it was proposed a simple document that contains all the relevant data for the response to the crisis triggered by the specific critical disaster, Table 1. The usability and effectiveness of this plan has been validated on the examples of floods in 63 municipalities with extended competences in the Czech Republic (CVUT).

Evaluation of the 188 of seminary work, stored in 2013-4 at the CVUT, the job of which was to construct a crisis plan for the selected municipality according to the pattern in Figure 2, showed that the students understand the logic of crisis management and gained the capability to actively participate in its preparation and response. On the basis of the above, we believe that the present tool leads to the improvement of crisis management, and is appropriate for the authorities of municipalities.

Therefore, we propose that each municipality with extended competence, or each organization, would have for each critical disaster the crisis plan in the form described in Figure 1. Because the data must be locally specific and technically correct, it is necessary that State to ensure professional support, so as to ensure the organisation of the TSO (Technical Support Organisations) in the European Union (Prochazkova 2011a).

4.2 *Example of Portugal*

Amadora is a satellite city of Lisbon located in the northwest of the Lisbon metropolitan area (Fig. 3). Composing an area of only 23.77 square km, Amadora Municipality is one of Portugal's smallest municipalities; however, with 7,343 inhabitants per km, Amadora has the highest population density of any municipality in Portugal. Amadora's population is characterised by an increasing proportion of elderly people. The territory of the municipality of Amadora is presented in Figure 3, where the emergency assets are presented such as the hospital, municipal services, police stations, water services.

Over the last 20 years the major disaster risks have been flash floods (urban area), urban fires, industrial fires, landslides, storms (fallen trees, damaged buildings, infrastructure, etc.) and road accidents. As a highly urbanized territory with a population insufficiently aware and/or sensitized about the risks and hazards, Amadora faced a number of challenges: growing urban population and increased density, which put pressure on land and services; weak local governance and insufficient participation by stakeholders in planning and urban management; the decline of ecosystems, due to human activities,

– adverse effects of climate change that will likely increase or decrease extreme temperatures and precipitation,

Table 1. Operational plan implemented in Portugal to the crisis situation caused by extreme weather events.

Responsibilities matrix | scenario 1: extreme weather events—precipitation			
Activities	Fire-fighters commander	Civil Protection Municipal Service Commander = > Mayor	Police commander
Identification of disaster	1ST	2ND	3RD
Notification of a crisis staff	Internal coordination	Internal coordination	Internal coordination
Continuous monitoring of the situation	Rescue	Support rescue and lead recovery	Support rescue and recovery
Warning the population	Not apply	Mission priority	Not apply
Evacuation of population	Support civil protection	Mission priority	Support civil protection
Restoration	Not apply	Mission priority	Not apply

The territory of the municipality of xxxxx is the schema, Figure 1. In the figure are marked public assets:.....; and objects which may be causes of domino effects**: ....**

Fig. 1

The scenario of critical disaster scenario **X** obtained by What, If for a given territory is in Table 1.

The possible impact on the lives and health of humans	
The potential impact on the human security	
The potential impact on assets and property	
The potential impact on the welfare	
The possible impact on the environment	
Possible impacts on the infrastructures and technologies that are further broken down into:	
the impact on energy supplies (electricity, heat, gas)	
impacts on water supply system	
impacts on drainage system	
impact on the transport network	
impacts of cyber infrastructure (communications and information network)	
the impact on the banking and financial sector	
the impacts of the emergency services (police, fire, paramedics)	
the impacts on basic services in the territory of the (food supply, waste disposal, social services, funeral services), industry and agriculture	
impacts on the state administration and self-government	

Responsibilities at response to the disaster **X** are in a matrix of responsibility-Table 2

Resorts Activities	The Mayor	X 1	X 2.....	Xn
Identification of disaster				
Notification of a crisis staff				
Continuous monitoring of the situation				
Warning the population				
Hide the population				
The evacuation of the population				
……				
Restoration				

The response process: Notify the authorities and response units; the continuous monitoring the situation; warning the population and specific warnings of the Mayor (i.e. it is performed by commissioned person) addressed to management of buildings with a large number of people and with technologies that can caused domino effects; hiding the population; the evacuation of the population, and especially the specific evacuation of buildings with a large number of people and help to plants with dangerous technologies. According to the needs of the activation of other organisations that carry out activities in accordance with the prepared plans – cleaning of the waste, the care of domestic animals, etc**.**

For the notification of bodies and components that will be involved in the response, the person in charge of the Mayor for crisis management uses text: XXXXXXXXXXXXXXXXXXXXXXXXXXXX-supplement 1

For warning citizens the IRS uses the sirens and public administration uses radio and other means, in which the person in charge of the Mayor for crisis management will use the text: XXXXXXXXXXXXXXXXXXXXXXXXXXXX-supplement 2

For evacuation of citizens from places A,B to places C,D,E the public administration uses radio and other means, in which the person in charge of the Mayor for crisis management will use the text: XXXXXXXXXXXXXXXXXXXXXXXXXXXX – supplement3

List of crisis staff˝ persons | Supplement1 | Supplement2 | Supplement3

Figure 2. Competent plan for response to the crisis situation caused by the critical disaster.

– a need to build capacity, identify, assess, monitor and reduce risks to build a culture of safety and resilience,
– how to place the issue of risk, disaster and resilience on the municipality agenda.

In August 2010 the Municipality of Amadora has joined the *Making Cities Resilient* Campaign to full fill the above gaps and implement UNISDR's Ten Essentials (UNISDR 2012). The campaign's aim was to mobilise organisations within the municipality and to create a strategies for disaster risk reduction in order to improve the operational plans (Carvalho & Lawry 2013) for crisis management (PPI 2015). The first operational plan for extreme weather events has been developed, and it was concluded by the end of 2014. Thus, the summary of the operational plan is presented in Tables 1 and 2.

The response process: in the Portuguese context of disaster situation the fire-fighters did the first approach and evaluation. Depending

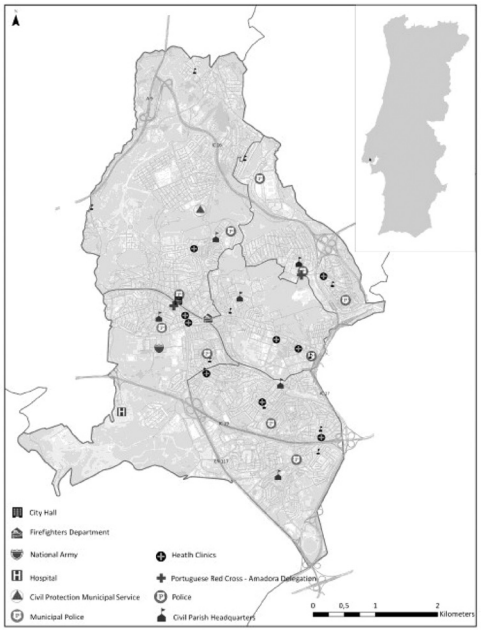

Figure 3. Framework of Amadora municipality operational plan.

Table 2. Operational matrix, for a scenario of extreme weather events—precipitation.

Responsible team	Vehicles	Staff
Available operational resources:		
Fire-fighters department	4	14
Civil protection municipal service	3	3
Police	3	6
City Hall (support civil municipal service)	17	23
Water services	4	8
Preventive/operational measures:		
Operational briefing with all entities.		
Information to the public about weather conditions (early warning system) and impacts expected by Meteorological Services and National Authority for Civil Protection Information available in real time to the public and decision makers.		

on the severity determined by fire-fighters, the civil protection municipal service and police will be called to provide logistic and recovery procedures.

Notification: the meteorological warning triggered several preventive measures and recommendations disseminated by the National Authority for Civil Protection and Civil Protection Municipal Services.

Warning system: the meteorological warnings issued by the Meteorological Services about extreme weather have as a target the populations and civil protections agencies, which are disseminated by the media.

5 DISCUSSION

There are several guidelines for emergency planning and crisis management. This information is then applied at national and local levels, which include different approach for disaster scenarios. As an example, the municipality of Amadora (Portugal) has been developing operational strategies, to improve their crisis management, under the Making Cities Resilient Campaign (UNISDR). The operational plan for extreme weather events scenarios has been developed for the first time, in order to ensure an articulate and adequate response. Since it was concluded has been applied once, on January 18–19, 2015. The fact the plan has already been implemented it helped the management of the event. For example, the response time was less than an hour. In the previous events that occurred without the plan, the average response time was 2 h 10 min. Therefore, the implementation of the plan demonstrated a better co-ordination and efficiency between the entities, providing positive outcomes. Still, evacuation of citizens is not implemented yet.

In order to improve this situation, regular evacuation exercises at schools have been implemented (Carvalho & Lawry 2013, PCA 2014). However, at university campus these types of activities are not applied. Only in 2012 the first evacuation exercise was conducted at the Lisbon University (Santos & Queiros 2015), which showed the regular building's users are not familiar with safety procedures. Moreover, a new experiment conducted at the Lisbon University campus (Santos & Queiros 2014) showed the university campus' users do not know what to do if an emergency situation occurs.

6 CONCLUSION

Thus, in the context of teaching at universities, it is necessary to cover the three objectives: to know the general concept of crisis management and its objectives; to know and to understand the application of crisis management in the state (country); and to learn how to process the ready plan of response to the crisis situation in real conditions in the given territory.

The present situation in the world shows that effective crisis managed is necessary and the public administration is forced to prepare and realise it.

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